

Claims

1. A linear guide unit comprising a guide carriage that is mounted through rolling elements for sliding on a guide rail, said guide carriage comprising a carrier body and end caps arranged on front ends of the carrier body, the linear guide unit comprising at least one endless rolling element channel comprising a load-bearing channel for load-bearing rolling elements, a return channel for returning rolling elements and two deflecting channels that connect the load-bearing channel and the return channel endlessly to each other and are defined by the end caps, a support rail arranged along the load-bearing channel and supported on the carrier body comprising a raceway for the rolling elements that defines the load-bearing channel, the support rail comprising a support member and a saddle member, the support member being received on the carrier body, and the saddle member comprising the raceway while being supported through a saddle surface for tilting motion on the support member.
2. A linear guide unit of claim 1, wherein a first coefficient of friction is chosen between the carrier body and the support member, and a second coefficient of friction is chosen between the support member and the saddle member, the first coefficient of friction being set to be larger than the second coefficient of friction.
3. A linear guide unit of claim 1, wherein the support member is inserted into a groove of the carrier body and comprises a curved support surface that cooperates with the saddle surface.
4. A linear guide unit of claim 1, wherein the support member is configured as one of a wire or a rod and typically has a circular cross-section.

5. A linear guide unit of claim 1, wherein at least one of the support member and the saddle member is made of a steel hardened by a heat treatment.
6. A linear guide unit of claim 5, wherein the carrier body is manufactured by continuous casting and is finished by vibratory grinding.
7. A linear guide unit of claim 1, wherein the carrier body comprises a groove that is open toward the guide rail and has a groove cross-section that is one of circular or gothic in shape and surrounds more than half of a circumference.
8. A linear guide unit of claim 1, wherein the saddle member comprises two parallel raceways of respective rolling element channels.
9. A linear guide unit of claim 8, wherein each of the two raceways is configured on a different side of the saddle member, and the saddle surface is configured on a side of the saddle member oriented toward the support member, a saddle axis of the saddle member being arranged between raceway axes of the two raceways.
10. A linear guide unit of claim 8, wherein the saddle member has a generally triangular shape, each of a first and a second side of a total of three sides of the saddle member comprising one of the raceways for the rolling elements, while a third side of the saddle member comprises the saddle surface.
11. A linear guide unit of claim 10, wherein each of the first and the second side comprises a concave raceway for the rolling elements.
12. A linear guide unit of claim 11, wherein the rolling elements are balls.

13. A linear guide unit of claim 10, wherein the third side is configured as a concave saddle surface that cooperates with a cylindrical outer peripheral surface of a wire that constitutes the support member.
14. A linear guide unit of claim 10, wherein the third side is configured as a concave saddle surface that cooperates with a cylindrical outer peripheral surface of a rod that constitutes the support member.